

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

In the Matter of

Mitigation of Orbital Debris in the New Space Age )

IB Docket No. 18-313

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**COMMENTS OF ECHOSTAR SATELLITE OPERATING CORPORATION AND  
HUGHES NETWORK SYSTEMS, LLC**

**I. INTRODUCTION**

EchoStar Satellite Operating Corporation (“ESOC”) and Hughes Network Systems, LLC (“Hughes”, and collectively “EchoStar”), submit these comments in response to the Federal Communications Commission’s (“Commission”) notice of proposed rulemaking on proposed changes to improve and clarify its orbital debris rules.<sup>1</sup> In light of the changing nature of the space environment, EchoStar supports the policy objectives of ensuring continued, safe operations in space and maximizing space commerce investment and innovation.<sup>2</sup>

As discussed in these comments, EchoStar supports the Commission’s efforts to update its orbital debris mitigation rules, including providing additional flexibility for satellite operators to meet the Commission’s orbital debris mitigation guidelines and disclosure requirements. To further this effort, EchoStar urges the Commission to continue to work with expert U.S. agencies on developing the domestic and international technical regime for orbital debris mitigation. This

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<sup>1</sup> *Mitigation of Orbital Debris in the New Space Age*, Notice of Proposed Rulemaking and Order on Reconsideration, 33 FCC Rcd 11352 (2018) (“*NPRM*”).

<sup>2</sup> *NPRM* ¶ 2.

will enable the Commission to leverage this expertise in setting its orbital debris mitigation requirements for its licensees. In addition, as EchoStar explains herein, it is important that the Commission’s orbital debris mitigation rules apply equally to U.S. and non-U.S.-licensed operators in order to ensure a safe space operating environment.

## **II. BACKGROUND**

EchoStar, a U.S.-based company and Commission-licensee, is the largest U.S. and fourth largest global commercial geostationary orbit (“GSO”) satellite operator. EchoStar currently owns, manages, and operates a fleet of 24 GSO satellites, primarily situated over the Americas and Europe, providing broadband, video, mobile satellite and other services to meet the needs of small and large customers, including media and broadcast organizations, direct-to-home providers, enterprise customers, government service providers, and residential consumers.

Hughes, is the largest provider of satellite broadband services in the United States and globally, with approximately 1.3 million subscribers across the Americas, including ubiquitous coverage of the continental United States, southeastern Alaska, Puerto Rico, and the U.S. Virgin Islands.<sup>3</sup> Hughes provides its broadband service through the use of a three-satellite GSO, Ka-band constellation over the United States.<sup>4</sup> Hughes is currently in the process of constructing its next-generation, Commission-licensed, ultra-high density satellite, EchoStar XXIV, which will provide service throughout the Americas at speeds of 100 Mbps or more.<sup>5</sup> EchoStar XXIV is

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<sup>3</sup> EchoStar Corp., Annual Report (Form 10-K) at 4 (Feb. 21, 2019), <https://www.sec.gov/ix?doc=/Archives/edgar/data/1415404/000141540419000003/sats12311810kdocument.htm>. Hughes is also a U.S.-based manufacturer of satellite terrestrial ground infrastructure.

<sup>4</sup> Spaceway 3, EchoStar XVII (Jupiter 1), and EchoStar XIX (Jupiter 2) form the three-satellite constellation Hughes uses to provide coverage of the United States, Canada, and Mexico. Hughes’ Latin America broadband coverage is provided by EchoStar XIX and two additional Ka-band satellite capacity leases, Eutelsat 65W and Telstar 19 Vantage at 63W.

<sup>5</sup> Press Release, Hughes, *Hughes Selects Space Systems Loral to Build Next-Generation Ultra High Density Satellite* (Aug. 9, 2017),

expected to launch and begin commercial service in 2021.<sup>6</sup> As a result of Hughes' global leadership in the development of satellite solutions, Worldvu Satellites Limited ("OneWeb") partnered with Hughes to develop the ground system, including gateways and user terminals, for its global low earth orbit ("LEO") satellite constellation.<sup>7</sup>

As a leading U.S. and global satellite operator, EchoStar has been a leader in the area of space sustainability and working to ensure a safe space operating environment. As such, EchoStar is pleased to bring this expertise to this proceeding.

### **III. THE COMMISSION SHOULD AVOID DUPLICATIVE OR OVERLAPPING ORBITAL DEBRIS MITIGATION REQUIREMENTS**

As the space environment increasingly becomes more congested, contested, and competitive,<sup>8</sup> it is critical that sufficient space traffic management ("STM"), space situational awareness ("SSA"), and orbital debris mitigation regimes are in place to ensure co-existence among commercial satellite and other space-borne operations. Determining the most effective means of establishing these regimes, and providing the appropriate oversight, requires a

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<https://www.echostar.com/en/Press/Newsandmedia/Hughes%20Selects%20Space%20Systems%20Loral%20To%20Build%20Next-Generation%20Ultra%20High%20Density%20Satellite.aspx>.

<sup>6</sup> *Id.*

<sup>7</sup> See Press Release, Hughes, *Hughes Announces Partnership in OneWeb's Innovative Global Satellite Broadband Initiative to Close the Digital Divide*, (Jun. 25, 2015), <https://www.prnewswire.com/news-releases/hughes-announces-partnership-in-onewebs-innovative-global-satellite-broadband-initiative-to-close-the-digital-divide-300104642.html>; see also Press Release, Hughes, *Hughes Signs \$190M Contract with OneWeb for Production of Ground Network System for Global Internet Services* (Nov. 7, 2017), <http://ir.echostar.com/news-releases/news-release-details/hughes-signs-190m-contract-oneweb-production-ground-network>.

<sup>8</sup> Known as the "three C's of space – congested, contested, competitive"; the phrase is commonly used to summarize the on-going balance of priorities relating to space assets and national security in the space environment. "Congested" refers to concerns over the increasing volume of orbital debris; "contested" refers to the increasing number of space-faring nations; and "competitive" refers to the marketshare of U.S. operators and manufacturers vis-à-vis the rest of the global marketplace. See e.g., "National Security Space Strategy – Unclassified Summary" Department of Defense and Office of the Director of National Intelligence (January 2011), <https://www.hsdl.org/?view&did=10828>.

meaningful review of the jurisdiction, capabilities, and available resources of the Commission and other federal agencies to ensure continued safe space operations and innovative space solutions.<sup>9</sup> As noted in the *NPRM*, the Commission should avoid adopting debris mitigation requirements that overlap with those within the authority and expertise of other agencies.<sup>10</sup> Accordingly, the Commission should narrowly construe its jurisdiction to reflect its core competencies with respect to orbital debris. Thus, although the Commission may require satellite operators to disclose their plans for mitigating orbital debris as part of the technical information required for space station applications,<sup>11</sup> it also should defer to the authority and expertise of other U.S. or international agencies tasked with developing specific technical criteria for mitigating orbital debris.

Indeed, the Commission recognizes the limits of its expertise by, for example, proposing to adopt the NASA standard for quantifying collision risks.<sup>12</sup> In addition, the Commission's debris mitigation requirements should accommodate future changes that may be made to the U.S. space traffic management regime. Congress and the Administration have been actively working

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<sup>9</sup> As Chairman Pai noted in a blog post leading up to the publication of this *NPRM*, “When asked by Senator Russell Long of Louisiana how the U.S. could stay ahead of the Russians, [then-FCC Chairman Newton] Minow said, ‘We should try to get the Russians to adopt the same bureaucratic regulatory system we have for communications[,]...which will tie them up in red tape.’ To this day, satellites continue to deliver tremendous benefits for the American people. So...the FCC will take up nine items to ensure that America leads in the New Space Age, with an emphasis on cutting through the red tape.” Ajit Pai, *Space Month at the FCC*, FCC Blog (Oct. 24, 2018, 1:30 pm), <https://www.fcc.gov/news-events/blog/2018/10/24/space-month-fcc>.

<sup>10</sup> See *NPRM* ¶ 17.

<sup>11</sup> *Mitigation of Orbital Debris*, Second Report and Order, 19 FCC Rcd 11567, ¶ 16 (2004). (“*2004 Orbital Debris Order*”).

<sup>12</sup> *NPRM* ¶ 26.

to identify a lead agency for the regulation of U.S. commercial space interests, including orbital debris mitigation.<sup>13</sup>

Finally, as the Commission and other agencies work through these important issues, they should examine the use of industry best practices as a means to ensure a safe space environment. To date, a large amount of our space traffic management regime has relied on industry best practices. Such an approach has been successful because industry, like governments, have a strong incentive to develop and operate in a safe space regime. As we move forward addressing the new space operating environment, EchoStar urges the Commission and the U.S. government to work with the private sector to develop and rely on best practices that can serve to safeguard our space resource.

#### **IV. THE COMMISSION'S ORBITAL DEBRIS REGULATORY REGIME SHOULD ENABLE FLEXIBILITY AND NOT UNDULY RESTRICT INNOVATION IN THE SPACE INDUSTRY**

In updating its orbital debris mitigation regime, the Commission should look to regulations that work best to allow satellite operators flexibility to mitigate orbital debris and develop innovative solutions. We are at a very exciting time in the space industry with new technologies coming online almost daily, and satellite operators have a strong self-interest in preserving and improving the usefulness of the space environment through technology innovation, system design, and network deployment. As the Commission updates its orbital

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<sup>13</sup> See e.g. Presidential Memorandum, *Space Policy Directive-3, National Space Traffic Management Policy* ("SPD-3") (June 18, 2018), <https://www.whitehouse.gov/presidential-actions/space-policy-directive-3-national-space-traffic-management-policy/>; see also *Space Situational Awareness: Whole of Government Perspectives on Roles and Responsibilities*: Hearing before the Subcomm. on Space of the H. Comm. on Science, Space and Technology, 115th Cong. (2018); *America in Space: Future Visions, Current Issues*: Hearing before the H. Comm. on Science, Space and Technology, 116th Cong. (2019).

debris regulations, it should focus more on identifying general guidelines that provide flexibility to operators to develop different innovative solutions.<sup>14</sup>

Accordingly, in its efforts to reduce orbital debris, the Commission should avoid mandating solutions, such as requiring active collision avoidance, limiting the number of satellites launched, and other requirements dictating satellite design and operations.<sup>15</sup> These proposals would substitute Commission judgments for those of industry without any evidence of effectiveness or need. Satellite operators already have ample economic incentives, and are committed, to ensuring a safe space environment for continued and expanding satellite operations through coordination and, the development of best practices. Continuous innovations in technological capabilities, rather than regulatory fiat, will ensure a safe space operating environment. Accordingly, the Commission should refrain from adopting stringent, burdensome regulations that substitute Commission judgment for that of industry, and instead adopt objective, narrowly-tailored requirements that can be met through flexible approaches.

By adopting regulations that unduly restrict a satellite licensee's ability to innovate and effectively respond to market conditions, the Commission would create an environment that encourages forum shopping for licensing administrations that place fewer operational restrictions on their satellite licensees.<sup>16</sup> Adopting such regulations could limit the Commission's regulatory

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<sup>14</sup> The Commission has been most successful when adopting such flexible requirements. For example, in adopting its E911 requirements, the Commission simply required operators to meet certain location accuracy requirements, but did not mandate the technology required to meet these requirements. See *Wireless E911 Location Accuracy Requirements*, Report and Order, 22 FCC Rcd 20105 (2007).

<sup>15</sup> See NPRM ¶¶ 92-100.

<sup>16</sup> As of 2018, 72 countries have government space agencies, and 14 of those have launch capabilities. Several of these countries, such as the United Kingdom and Australia, are currently revising their regulations in order to attract more space operations to their markets. See e.g. Jeff Foust, *Australia's new space agency plans commercial focus*, Space News (Oct. 2, 2018), <https://spacenews.com/australias-new-space-agency-plans-commercial-focus/>.

authority over existing and future satellites, and undercut the U.S. leadership in space, an important Administration goal. Consequently, the Commission should focus more on ensuring a safe space environment by providing operators the necessary regulatory flexibility to determine the most effective technical means of achieving this outcome.

**V. THE COMMISSION SHOULD PROVIDE FLEXIBILITY IN SEEKING SATELLITE LICENSE TERM EXTENSIONS**

EchoStar supports the Commission's proposal to codify its practice of requesting certain information to support a request to extend a GSO license term.<sup>17</sup> EchoStar further supports the Commission's proposal to grant requests for five-year extensions of initial 15-year license terms, as this reflects the current state of technology and would reduce administrative burdens. The Commission, however, should also consider granting extensions for more than five years, based upon a case-by-case demonstration of facts warranting such action.

**VI. THE COMMISSION SHOULD NOT ADOPT INDEMNIFICATION REQUIREMENTS FOR ON-ORBIT ACTIVITIES**

The Commission previously considered and declined to impose indemnification requirements upon satellite licensees.<sup>18</sup> Absent any changed circumstances or statutory authority to adopt such requirements, the Commission should refrain from doing so.

**VII. ANY RULES OR AMENDMENTS ADOPTED IN THE PROCEEDING SHOULD BE APPLIED EQUALLY TO NON-U.S. LICENSED SATELLITES SEEKING MARKET ACCESS**

EchoStar supports the Commission's proposal to extend any rules adopted in this proceeding to non-U.S.-licensed satellites operators that obtain U.S. market access.<sup>19</sup> Exempting

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<sup>17</sup> *NPRM* ¶ 65.

<sup>18</sup> *See 2004 Orbital Debris Order* ¶¶ 109-10.

<sup>19</sup> *NPRM* ¶ 85.

non-U.S.-licensed satellites from orbital debris mitigation regulations undermines the effectiveness of their implementation, and encourages satellite operators to seek authorization from the least onerous administration prior to petitioning for market access in the United States.

However, EchoStar supports the Commission's proposal that non-U.S.-licensed satellites should be able to satisfy disclosure obligations by making a *demonstrable* showing that their satellite system's debris mitigation plans are subject to direct and effective regulatory oversight by their national licensing authority.<sup>20</sup> Since not all regulators provide the same transparency as the Commission, regarding their oversight of orbital debris, the Commission should require applicants to demonstrate that they are subject to similar regulatory oversight as the Commission for orbital debris mitigation. This will ensure that the necessary regulatory oversight is being provided by the foreign regulators.

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<sup>20</sup> *Id.* ¶ 87. *See also* 47 C.F.R. § 25.114(d)(14)(v).



## VIII. CONCLUSION

EchoStar commends the Commission for undertaking this timely review of the orbital debris mitigation rules and its continued commitment to ensuring a safe space environment for all communication satellite operations. EchoStar encourages the Commission to adopt rules that will provide the regulatory flexibility operators need in order to maintain a safe space environment and to ensure U.S. leadership in space.

Respectfully submitted,

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